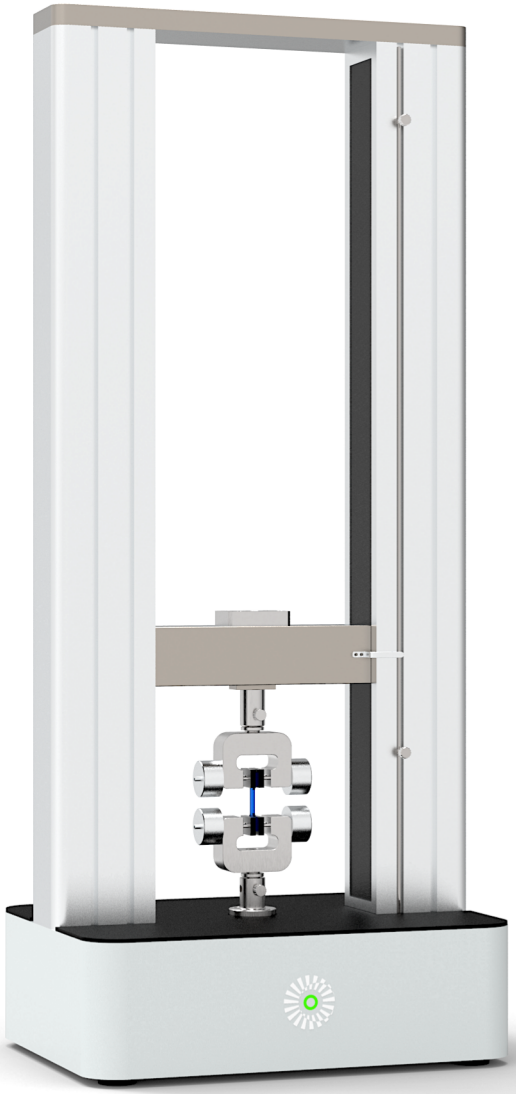
THELKIN
Know the Difference

Application Note

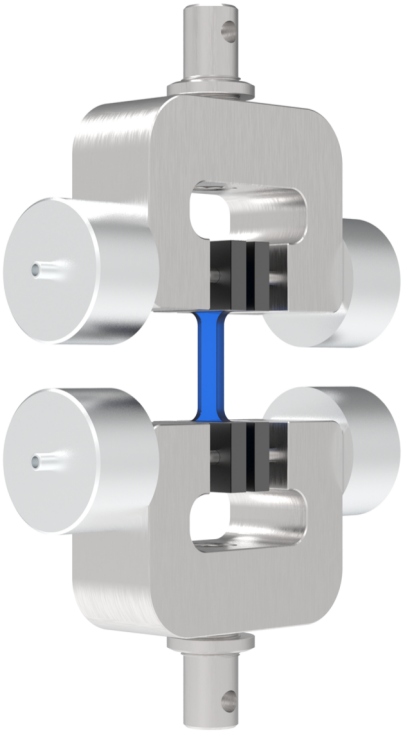
# ISO 527-1 – Plastic Materials Testing



# Background

The test standard ISO 527-1[1] specifies methods for the uniaxial tensile test on plastics. This test is used to determine essential mechanical properties of a standardized specimens, including tensile stress, elongation, tensile modulus, yield point, breaking point and Poisson's ratio. These parameters are used to characterize the material.

# Test Setup



The test specimens can be produced by injection molding or cut. Providing a constant clamping force, pneumatic grips are particularly suitable as specimen holders. At a constant strain rate, the specimen is moved in tensile direction until it breaks.

Due to the visco-elastic properties of many plastic materials, changing testing velocities will produce different mechanical properties. This must be taken into account when designing a component or plastic product.

The above-mentioned material characteristics can then be determined from the recorded resulting data. The use of external displacement measuring systems also allows a specific strain measurement of the relevant sample area.

# Equipment

The test requirements described in DIN 527-1 can be easily implemented with THELKIN's servo-static test systems. These offer the required measuring accuracy of 1% (class 1 or better). Test profiles, failure criteria and data acquisition can be defined easily and efficiently via the operating software:

- **THELKIN Servo Static Load Frame SSL-M-100** - complies with all specifications of ISO 527-1 and allows easy and safe sample mounting, programming of the test as well as data acquisition and test execution.
- **Vise Grip GR.VI.PN** - fast and safe fixing of the specimen.

Other accessories, such as external extensometers or chambers for environmental simulation, complete the functionality of the basic system.

[1]ISO 527-1:2019: Plastics — Determination of tensile properties — Part 1: General principles.

**THELKIN GmbH**, Flugplatzstrasse 5, 8404 Winterthur, Switzerland
Phone: +41 (0)52 511 87 44, Mail: info@thelkin.com
thelkin.com

SWISS MADE

MR.AN.0016.EN.00